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CONSTRUCTION OF A NEW MAST ANTENNA FOR RADIO BROADCASTING STATIONS

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During the summer and fall of 1951 work was carried out in our radio center to erect the electric portion of a new mast-antenna with top supply on the laying of the radio-grounding radial feeders for the radio broadcasting station. All the work, which was large in scope, had to be carried out during a limited amount of time by the employees of the radio center.

We were able to count on the completion of this work within the scheduled time only by practicing the maximum mechanization possible. The inventiveness and resourcefulness of the group of engineering-technical workers, who erected the supply feeders for the antenna, protective illumination for the mast and laying the grounding of the antenna, help meet the time schedule.

The senior technician of the radio broadcasting station, comrade N. N. Molchanov, simplified and improved the method of employing the GRN-2 electric welding machine as described in the TEKhSO card No 152 dated 1949. He dispensed with the use of a welding choke, since the arc burns in a stable manner if d-c welding is used. Similar commercial-type welding machines also dispense with the welding choke. Short-time short circuits do not overheat the machine and during normal operation the current usually does not exceed 200-250 amperes (the nominal current of the machine is 350 amperes); the brushes of the machine do not spark and the commutator does not burn out.

Instead of employing the method indicated in the TEKhSO card of regulating the current by changing the length of the welding wires, which is very inconvenient, a method of regulating the current by slight changes of the brush holders (within 10 mm of the neutral position) was employed; no sparking is observed in this case. The tightening bolt of the brush-holder ring is best replaced with a thumb screw; in this case it is possible to vary the value of the current while the machine is running, by exercising a certain amount of caution.

The method described makes it possible to select the value of the current for welding metal from 1.5 to 200 mm thick, employing electrodes 3 to 6 mm in diameter. The positions of the brush holder for various values of current are marked with a center punch.

Comrade Molchanov also suggested the use of the GRN-2 machine for cutting metal up to 15 mm thick. To cut thicker metal it is best to employ electrodes having a thick coating and increase the current of the machine to 300 amperes.

It is necessary to manufacture a plywood or fiber shield with a protective glass for the welder and make an electrode holder of steel wire 6-8 mm in diameter as part of the welding-station equipment. The welding plate employed can be a piece of channel iron with a bolt welded to it for connecting the wire. If the cross-section of the connecting wires is 35-50 square millimeters, their length from the machine to the working place should not exceed 50-70 m.

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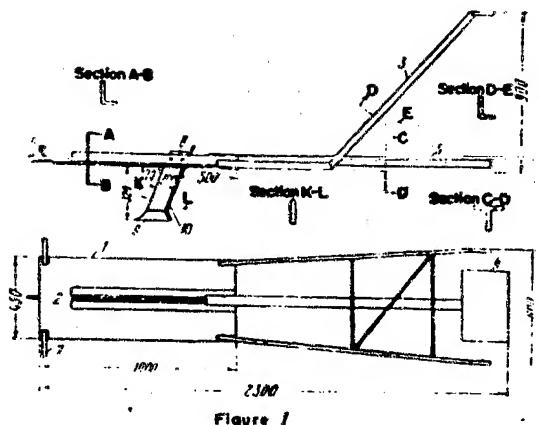


Figure 1

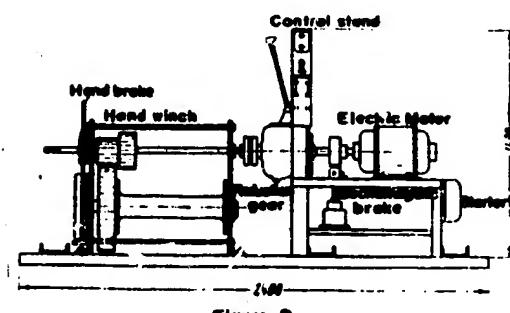


Figure 2

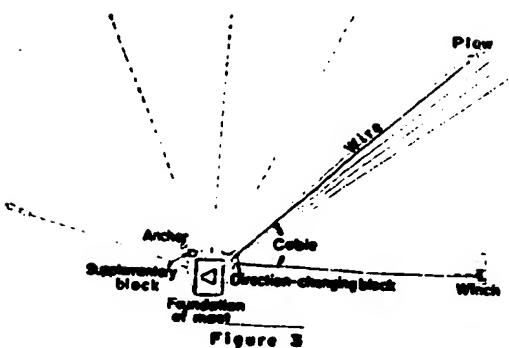


Figure 3

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